



Australian Government

**Assessment Requirements for MEM14088
Apply maintenance engineering techniques
to equipment and component repairs and
modifications**

Assessment Requirements for MEM14088 Apply maintenance engineering techniques to equipment and component repairs and modifications

Modification History

Release 1. Supersedes and is equivalent to MEM14088A Apply maintenance engineering techniques to equipment and component repairs and modifications.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- communicating, negotiating and reviewing maintenance brief with stakeholders
- determining or confirming scientific principles and design techniques, design specification requirements and work health and safety (WHS) and regulatory requirements
- evaluating multiple solutions
- investigating life cycle design, sustainability, technical and professional assistance required, and maintenance alternatives for repairs and modifications on at least two occasions
- planning, scheduling and coordinating maintenance task on at least two occasions
- solving problems and making decisions with systems thinking for contingencies and constraints, and continuous improvement
- defining designs, specifying, documenting and applying techniques on at least two occasions
- selecting components and hardware
- creating and maintaining adequate and accurate calculations and design process records
- reporting and documenting results on at least two occasions.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- factors that determine maintenance requirements
- sustainability implications of maintenance processes, materials and products, including consideration of life cycle analysis

- design and planning processes, criteria and techniques
- concurrent engineering techniques, systems thinking, problem-solving and decision-making, and continuous improvement methods
- WHS acts and regulations, codes of practice, standards, registration and risk assessment for design, maintenance and prototyping activities
- procedures for planning, scheduling and coordination of maintenance design
- sources of professional and technical assistance
- typical maintenance criteria including:
 - strength and serviceability of repairs compared to original
 - function and aesthetics
 - maintainability and manufacturability
 - preventative maintenance evaluation criteria including mean time between failure (MTBF) and failure mode effects analysis (FMEA)
 - required quality, cost and sustainability
- design calculation techniques
- typical maintenance design requirements of various industries
- typical repairs, parts, skills and maintenance processes
- hardware specifications and catalogues
- typical maintenance plant, equipment and tools
- plant condition and maintenance assessment techniques
- typical maintenance techniques and technologies for monitoring, preventative maintenance, online and breakdown maintenance, disassembly, repair, reassembly and recommission
- design calculations layout and documentation for design checking and maintenance records
- design process documentation and reports, including specifications and CAD graphics
- software for maintenance planning and repair and modification design, including CAD and stress analysis software
- software and systems including system control and data acquisition (SCADA) and distributed control systems (DCS) for maintenance control and information distribution
- developments in repair and modification design
- options for mock-up, modelling and prototyping.
-

Assessment Conditions

- Assessors must:
 - have vocational competency in applying maintenance engineering techniques to equipment and component repairs and modifications at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the Standards for Registered Training Organisations 2015 or its replacement and comply with the National Vocational Education and Training Regulator Act 2011, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.

- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>